# Program Listing for Hayward

| Diversion Program Name | *Prior to SRRE | SRRE Selected | 1997 Status | 1998 Status |
|---|---|---|---|---|
| **Source Reduction** | | | | |
| Xeriscaping/Grasscycling | Yes | Yes | X | X |
| Backyard and On-Site Composting/Mulching | Yes | Yes | X | X |
| Business Waste Reduction Program | No | Yes | X | X |
| Procurement | Yes | Yes | X | X |
| Government Source Reduction Programs | Yes | Yes | X | X |
| Material Exchange, Thrift Shops | Yes | Yes | X | X |
| **Recycling** | | | | |
| Residential Curbside | Yes | Yes | X | X |
| Residential Drop-Off | Yes | Yes | X | X |
| Residential Buy-Back | Yes | Yes | X | X |
| Commercial On-Site Pickup | Yes | Yes | X | X |
| Commercial Self-Haul | Yes | Yes | X | X |
| Government Recycling Programs | Yes | Yes | X | X |
| Special Collection Seasonal (regular) | Yes | Yes | X | X |
| **Composting** | | | | |
| Residential Curbside Greenwaste Collection | No | No | X | X |
| Residential Self-haul Greenwaste | No | Yes | X | X |
| Commercial Self-Haul Greenwaste | No | Yes | X | X |
| **Special Waste Materials** | | | | |
| Sludge (sewage/industrial) | Yes | Yes | X | X |
| Tires | Yes | Yes | X | X |
| Concrete/Asphalt/Rubble | Yes | Yes | X | X |

X = indicates programs being implemented

Any blank status code above could be one or more of the following:
- Dropped
- Selected and Not Implemented
- Planned Future

* Existing prior to SRRE (Source Reduction Recycling Element)

# Program Listing for Hayward

| Diversion Program Name | *Prior to SRRE | SRRE Selected | 1997 Status | 1998 Status |
|---|---|---|---|---|
| **Public Education** | | | | |
| Electronic (radio ,TV, web, hotlines) | Yes | Yes | X | X |
| Print (brochures, flyers, guides, news articles) | Yes | Yes | X | X |
| Outreach (tech assistance, presentations, awards, fairs, field trips) | Yes | Yes | X | X |
| Schools (education and curriculum) | No | Yes | X | X |
| **Policy Incentives** | | | | |
| Economic Incentives | Yes | Yes | X | X |
| Other Policy Incentive | No | Yes | X | X |
| **Facility Recovery** | | | | |
| Composting Facility | No | Yes | | |
| **Transformation** | | | | |
| Tires | Yes | Yes | X | X |

X = indicates programs being implemented

Any blank status code above could be one or more of the following:

- Dropped
- Selected and Not Implemented
- Planned Future

* Existing prior to SRRE (Source Reduction Recycling Element)

# Jurisdictional SRRE Program Summary
## Household Hazardous Waste (HHW)
**Selected Year(s): 1997, 1998**

| Jurisdiction | Year | HH-PMF | HH-MPC | HH-CSC | HH-WSE | HH-EDP | HH-OTH |
|---|---|---|---|---|---|---|---|
| Hayward | 1997 | X | X | X | | X | |
| | 1998 | X | X | X | | X | |

Legend: HH-PMF Permanent Facility
HH-MPC Mobile or Periodic Collection
HH-CSC Curbside Collection
HH-WSE Waste Exchange
HH-EDP Education Programs
HH-OTH Other HHW

To request a correction to or substitution for a previously approved base-year amount used in calculating the diversion rate for your jurisdiction, please complete and sign this form and return it to your Office of Local Assistance (OLA) representative at the address below, along with any additional information requested by OLA staff. When all documentation has been received, your OLA representative will work with you to prepare for your appearance before the Board. If you have any questions about this process, please call (916) 255-2555 to be connected to your OLA representative.

Mail completed documents to:

California Integrated Waste Management Board
Office of Local Assistance, MS 8
8800 Cal Center Drive
Sacramento CA 95826

## General Instructions:

Please select the **ONE** choice below that best explains your request to the Board, and complete the appropriate sections. **All respondents must complete Section I** and either Section II A or II B, as noted.

☒ **1.** Correct our existing Board-approved base-year generation (disposal or diversion) tonnage. (Please complete Section I and Section II A.)

☐ **2.** Use a recent generation-based study to substitute for our existing Board-approved base-year generation amount, but not officially change our existing Board-approved base year. (Please complete Section I and Section II B.)

☐ **3.** Use a recent generation-based study to officially change our Board-approved existing base year to a new base year. (Please complete Section I and Section II B.)

### Section I: Jurisdiction Information and Certification

*All respondents must complete this section.*

I certify under penalty of perjury that the information in this document is true and correct to the best of my knowledge, and that I am authorized to make this certification on behalf of:

| Jurisdiction Name | County |
|---|---|
| City of Hayward | Alameda |

| Authorized Signature | Title |
|---|---|
| Kevin V. Kutler | Director, Public Works |

| Type/Print Name of Person Signing | Date | Phone |
|---|---|---|
| Dennis Butler | 7/31/00 | (510) 583-4710 |

| Person Completing This Form (please print or type) | Title | Phone |
|---|---|---|
| Vera Dahle-Lacaze | Solid Waste Manager | (510) 583-4725 |

| Mailing Address | City | State | ZIP Code |
|---|---|---|---|
| Public Works Dept., 777 B Street | Hayward | CA. | 94541-5007 |

## Section II A: Information for Correction of Existing Base-Year Tonnage

*Respondents who chose option 1 on the first page must complete this section.*
*Attach additional sheets if necessary—please reference each response to the appropriate cell number (e.g., A6).*

| A1. Current Board-approved base year: | A2. Increased or decreased **diversion** tons requested: | A3. Increased or decreased **disposal** tons requested: | A4. Proposed total base-year **generation** tons requested (add figures from A2 and A3): |
|---|---|---|---|
| 237,999 | 19,424 | 4,620 | 24,044; Total: 262,043 |

**A5.** Document your proposed base-year modification method:

- [X] Board-approved method from the March 26, 1997 "Agenda Item 32" list." Name of method: _
- [ ] Board-approved method from November 5, 1998 "Agenda Item 8" ["LA Fix" method]."
- [ ] Proposed method is not currently Board-approved. (Explain the method in detail below.)

Methods:
A-1,
B-4,
F-7

- If you need a copy of either agenda item, contact your Office of Local Assistance representative.

**A6.** If additional **diversion** tonnage is requested in Box A2, choose one:

- [ ] All diversion tonnage claimed is from a 100 percent audit (full enumeration) of diversion programs.
- [X] Some diversion data were estimated or extrapolated from representative sampling. (Explain the amount and method in detail below.)

**A7.** Describe the **diversion** data records that support your claim and are available for Board audit. Include type of record and location; for example, weigh tickets from transfer station.

| Diversion Program | Tons | Type of Record | Location of Data |
|---|---|---|---|
| In response to this question, please reference the attached Appendix A-2a. | | | |

**A8.** If additional **disposal** tonnage is requested in Box A3, choose one:

☐ All tons claimed are from a 100 percent audit (full enumeration) of hauler, self-haul, or other tonnage.

☒ Some disposal data were estimated or extrapolated from representative sampling. (Explain the amount and method in detail.)

**A9.** In the table below, list the **disposal** data records that support your claim and are available for Board audit. Include type of record and location; for example, weigh tickets from transfer station.

| Source of Additional Disposal | Tons | Type of Record | Location of Data |
|---|---|---|---|
| In response to this question, please reference the attached Appendix A-2a. | | | |

**A10.** Enter your diversion rates in the table below.

| | Year 1998 | Year |
|---|---|---|
| **Current calculated diversion rate:** | a. 42 % | b. % |
| **Proposed diversion rate:** | c. 45 % | d. % |

**A11.** If the proposed base-year generation tonnage correction results in an increase in your waste **diversion** rates, please explain how your **diversion** rate is consistent with your **diversion** program implementation efforts.

The City of Hayward has implemented the programs identified in its Source Reduction and Recycling Element, except that the City chose not to implement the residential four-sort system for single-family dwellings, elected instead to require residents to continue to use the existing three-container system and provided a 64- or 96-gallon cart for yard trimmings. In any given week, the setout rate for the curbside program is about 75% and about 50% for the yard trimmings program.

The City has also implemented a commercial recycling program to assist small-to-medium size businesses to recycle their paper and cardboard. Larger waste generators are provided technical support to assist them in implementing recycling programs.

**A12.** If the difference between the proposed **diversion** rates in A10c and A10d is greater than 5 percentage points, please explain the reasons for the difference in the rates. (For example: program implementation or data errors.) Not Applicable.



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## Section II B: Information for New Generation-Based Study for Existing or New Base Year

*Respondents who chose option 2 or 3 on the first page must complete this section.*
*Attach additional sheets if necessary—please reference each response to the appropriate cell number (e.g., B4).*

| B1. Current Board-approved base-year: | B2. Proposed new generation-based study year: |
|---|---|
| | |

B3. Is the proposed generation study year representative of average annual jurisdiction disposal and diversion patterns? ☐ Yes ☐ No

B4. Please select the **ONE** choice below that best explains your **diversion** data.

☐ All diversion tonnage claimed is from a 100 percent audit (full enumeration) of all available diversion programs.
☐ Some diversion data were estimated or extrapolated from representative sampling. (Explain amount and method in detail below.)

B5. In the table below, list the **diversion** data records that support your claim and are available for Board audit.
Include type of record and location; for example, weigh tickets from transfer station.

| Diversion Program | Tons | Type of Record | Location of Data |
|---|---|---|---|
| | | | |

B6. Please select the **ONE** choice below that best explains your **disposal** data and complete the required tables.

☐ a. All tons claimed are from the Board's Disposal Reporting System (1995 and after). (No explanation required. Skip to B9.)
☐ b. All tons claimed are from a 100 percent audit of hauler and self-haul tonnage (pre-1995). (Please complete B7 and then skip to B9.)
☐ c. Some Disposal Reporting System data were corrected. (Please skip to B8.)

B7. If you chose "b" in B6, list the **disposal** data records that support your claim and are available for Board audit in the table below.
Include type of record and location; for example, weigh tickets from transfer station.

| Source of Disposal | Tons | Type of Record | Location of Data |
|---|---|---|---|
| | | | |



27-11

**B8.** If you chose "c" in B6, list the **disposal** data records that support your claim and are available for Board audit in the table below. Explain tonnage amount, correction method used, and correct owner of disputed tonnage in detail.

| Source of Disposal | Tons | Correction Method Used | Correct Owner |
|---|---|---|---|
| | | | |

**B9.** Enter your diversion rates in the table below.

| | Year | Year | Other Year: (please specify) |
|---|---|---|---|
| **Current calculated diversion rate:** | a. % | b. % | |
| **Proposed diversion rate:** | c. % | d. % | e. % |

**B10.** If the proposed base-year generation tonnage correction results in an increase in your waste diversion rate, please explain how the diversion rate is consistent with your diversion implementation efforts.

**B11.** If the difference between the proposed diversion rates in B9c and B9d or B9d and B9e is greater than 5 percentage points, please explain the reasons for the difference in the rates. (For example: program implementation or data errors.)



27_12

# City of Hayward

## Appendix A-2a for the 1998 Annual Report: Detail of the Adjustments to the Base-Year Tonnage Generation And Appendix A-3a, 1998 Reporting Year Tonnage Modification Request & Certification

### Introduction

This report has been prepared to revise the 1998 Annual Report and Disposal Reduction Calculations submitted to the California Integrated Waste Management Board (CIWMB).

The report provides detailed information in five sections:

- Section 1 revises the tonnage of wastes disposed in 1990.
- Section 2 describes additional diversion activities from 1990 that were not included in the diversion rate, and calculates the tons diverted by these activities.
- Section 3 presents adjustments for the 1998 reporting-year tonnage disposed.
- Section 4 reviews the population, employment and taxable sales figures used for the 1998 reporting-year calculations, and selects those that optimize the diversion rate
- Section 5 presents the revised diversion rate for the 1998 reporting-year, based on the information provided in Sections 1-4.

### Background

*Waste generation* is defined in the Integrated Waste Management Act of 1989 (AB 939) as the sum of *waste disposed* and *waste diverted* from disposal through activities such as source reduction, recycling and composting.

The City's Solid Waste Generation Study (SWGS) and Source Reduction and Recycling Element (SRRE) were prepared by the consulting firm R.W. Beck in 1990. Preparation included conducting a waste composition and characterization study in 1990 by sampling wastes disposed and diverted at the Davis Street Transfer Station. Other work included a survey of materials diverted from disposal by recyclers, businesses and government offices in the City in order to estimate total tons diverted.

In 1990, Brown & Caldwell prepared the SWGS and SRRE for all of the jurisdictions in Alameda County, except Berkeley and Hayward. In 1995, the Hayward SWGS and SRRE were revised using the Brown & Caldwell waste generation figures in order to be consistent with the assumptions and calculations used for all of the other jurisdictions in the County.

In 1995-1996, a County-wide, four-season Disposed Waste Characterization Study was performed by EMCON for the Alameda County Waste Management Authority (ACWMA). This study provided details of the amount and composition of *waste disposed* from Hayward.

## Findings

The attached **CIWMB Diversion Rate Measurement Calculation, Step 3: Calculation Worksheet Result** (Attachment 1), includes all of the changes identified in this report. The revised Worksheet corrects the base-year generation tonnage, and adds the other base-year adjustments that are identified in this report.

- ✓ The "Base-Year Generation Tonnage" is revised from 237,999 tons to 262,043 tons for 1990.
- ✓ The "Reporting-Year Disposal Tonnage" is revised from 169,584 tons to 168,760 tons for 1998.
- ✓ Revised growth factors for employment (identified in Section 4 of this report) are used in the "Input Adjustment Method Factors." The population, taxable sales and CPI factors are not revised.
- ✓ The revised 1998 "Estimated Reporting-Year Generation Tonnage" is calculated in this report to be 306,004 tons.

**Based on the proposed adjustments presented in this report, the City of Hayward achieved a 45 % diversion rate in 1998.**

## Section 1: Review and Revise the Calculated Disposed Tonnage for 1990

This section revises the 1990 disposed tonnage calculations that were compiled by Brown & Caldwell.

Factors that could be adjusted include:
1. wastes disposed of out-of-county that were not identified;
2. self-hauled wastes disposed; and
3. City clean-up of wastes disposed.

### 1.1. Wastes Disposed Of Out-of-County

The 1990 Waste Generation Study performed by Brown & Caldwell made no attempt to identify wastes that were disposed of out-of-county. However, some wastes (especially self-hauled wastes) might have been hauled out of Alameda County to landfills with tipping fees lower than the Davis Street Transfer Station.

In 1996, the City of Fremont reported that 1.6% of its disposed wastes were landfilled outside of Alameda County. Since Fremont is closer to the County boundary, it would be expected that more of their waste would have been hauled out-of-county. Also in 1996, the City of Sunnyvale identified that 0.92% of its waste had been hauled out of county and not counted in 1990.

Out-of-county waste disposal is further supported by the ACWMA *Final 1998 Solid Waste Tonnage Report* dated June 12, 2000, which indicates that 2,592 tons (2%) of waste from Hayward were disposed of in other counties. Therefore, it is projected that in 1990, approximately 1% of Hayward's disposed wastes were disposed of in other counties. This means that 2,620 tons would not have been counted in the base tonnage.

### 1.2. Self-Hauled Wastes Disposed

In 1996, an adjustment was made in the self-hauled waste stream in the City of Cupertino. This adjustment reflected the lack of wastes described as self-hauled in the City's 1991 SRRE. In 1990, only 1% of their waste stream was identified as self-hauled.

A similar evaluation was conducted of the waste generation studies prepared by Brown & Caldwell and EMCON in order to identify comparable and appropriate levels of self-hauled wastes from incorporated Hayward. Based on the Brown & Caldwell data, there were 15,176 tons of small-vehicle, commercial self-hauled wastes, and 25,891 tons of non-franchised construction and demolition wastes, for a total of 41,067 tons disposed of in 1995. This is approximately 28% of the total disposed waste stream. Therefore, no additional tonnage from self-hauled wastes disposed is claimed.

### 1.3. City Clean-Up of Wastes Disposed

In 1990, City crews deposited debris generated by streets and utilities maintenance and clean-up activities at the City's Hesperian Wellfield site. The materials consisted of leaves, stumps, furniture, dirt, and other mixed debris. Once a year, the City released a contract to have this material hauled to the "Altamont Pass Dump Site" or to the Davis Street Transfer Station in San Leandro. This practice continued until 1997, when the City changed its trash collection and disposal agreement to require the contractor to remove and dispose of this debris. As the attached purchase requisition indicates, 10,000 cubic yards of miscellaneous debris were removed from the City's Hesperian Wellfield site to the Davis Street Transfer Station (Attachment 2). Since this tonnage was hauled to landfill in June 1990, it is likely that this tonnage was not recorded as disposed while R.W. Beck conducted its sampling of wastes disposed. Furthermore, if this 2,000 tons had been received in one week during the sample survey, this tonnage would have been recorded by R.W. Beck staff, multiplied by 52 weeks and added 104,000 tons to the City's disposed waste stream. Based on an average density of 400 pounds per cubic yard, a total of 2,000 tons of street cleanup debris were landfilled in 1990, but not included as tonnage disposed in 1990.

### Total Base-Year Disposed Tonnage Adjustment

The total base-year tonnage increase is 4,620 tons, including 2,620 tons from out-of-county disposal and 2,000 tons from City clean-up activities. This increases the base-year tonnage from the reported 237,999 tons to 242,619 tons.

## Section 2: Review and Revise the Calculated Diverted Tonnage for 1990

This section identified 1990 diversion activities that were not included in the CIWMB "Approved Base-Year Generation Tonnage" calculated for the 1990 base-year.

The diversion activities include:
1. existing recycling activities that were not counted in 1990; and
2. existing source reduction practices by businesses, the City and residents that were not counted in 1990.

Three tables have been included to provide the details of the diversion calculations. They present City streets maintenance activities (Table 2.1.B, pages 9-12), commercial waste prevention activities (Table 2.2.A, page 21), and residential waste prevention activities (Table 2.2.C, page 22). The documentation for the City-generated inerts, as described in Section 2.1.B. below, is enclosed as Attachment 3.

### 2.1. 1990 Recycling Activities That Were Not Counted

A. Private Sector Recycling

In 1990, surveys were conducted of local recycling businesses by R. W. Beck to determine the amount of recyclables recovered from activities in the City of Hayward. The R.W. Beck survey identified 41,977 tons of material that were estimated as recovered. However, the data was only as accurate as the recycling businesses would provide, and some of the larger companies in the City likely had arrangements with recyclers outside the survey area. The Brown & Caldwell waste generation survey data compiled for 1990 projected diversion through recycling at 91,772 tons. The 1995 revision of the City's SRRE incorporated the Brown & Caldwell data, and increased diversion by 49,795 tons. This increase included the private sector recycling activities that were not included in the 1990 SWGS conducted by R.W. Beck. Therefore, no additional tonnage due to private sector recycling activities has been identified by this study.

B. Diversion of City-Generated Inerts

The base-year studies by R.W. Beck and Brown & Caldwell did not include diversion of City generated inerts which were not landfilled, but were used for wet weather pads and roadways by the landfill operator, Waste Management Inc. In 1990, 20 such projects generated significant tonnage that was not counted. These include water main construction and replacement activities, replacement of sanitary sewers, pavement rehabilitation activities at locations throughout the City, street extensions, slide repairs, left-turn lanes on major streets and landscape renovation. All tonnage calculations use the following conversion formulas:

- Concrete (tons per cubic yard): 1.30
- Asphalt (tons per cubic yard): 1.1
- Earth (tons per cubic yard): 1.03

1. West Winton Avenue Left Turn Lane Extension

This project required removal of 42.9 tons of concrete and 93.5 tons of asphalt for a total of 136 tons of inert wastes generated for use at the landfill, but not disposed of in a landfill in 1990 (Project No. 5880).

2. Construction of Water Main, 'D' Street & Hill Avenue

This project required removal of 200 tons of asphalt and concrete pavement generated for use at a landfill, but not disposed of in a landfill in 1990 (Project No. 7015).

3. Sanitary Sewer Replacement

This project required removal of 1,270 tons of asphalt and some dirt that had stuck to the asphalt (Project No. 7507).

4. Surfacing Reservoir Sites

This project required removal of 1,019 tons of asphalt that was recycled not landfilled (Project No. 7027).

5. Left Turn Lane at Huntwood Avenue

This project required removal of 170 tons of asphalt/concrete (Project No. 5131).

6. Intersection Improvements at Clawiter Road

This project required removal of 352 tons of asphalt which was recycled not landfilled (Project No. 5877).

7. Water Main Replacement

As part of its normal maintenance operations, the City of Hayward replaced water mains in three sections of the City. The process involves digging up the existing water main, putting new lines in, and refilling the trenches generated in removing the old lines. Since the soil removed from the trenches could not be reused to fill the trenches, this project required the purchase of 821 tons of materials to refill the trenches created, and 195 tons of asphalt/concrete to repair the street surface. (Projects No. 7040, 7054, and 7055). It is calculated that an equal amount of materials were removed from the trenches dug for the water main replacement. Therefore, 1,016 tons of inert wastes were generated for use at the landfill, but not disposed of in a landfill in 1990.

8. Pavement Rehabilitation (Street Resurfacing)

The process of preparing streets for rehabilitation and overlay requires removal by "planing" the top portion of the existing pavement. The thickness of the planed surface varied by location

from 0.1-feet to 0.2-feet (1.2-inches to 2.4-inches thick). In 1990, the City street rehabilitation activities generated 7,700 square yards at 0.1-feet thick, 2,500 square yards at 0.15-feet thick, and 15,500 square yards at 0.2-feet thick. Additionally, along the margins of curbing a "wedge cut" is made. The average thickness of the wedge is 0.05-feet. The wedge surfaces covered 21,250 square yards. (Projects No. 5146, 5153).

The cut sections generated a total of 1,770 cubic yards of material (257 + 125 + 1,034 + 354). At an average density of 2,200 pounds per cubic yard, approximately 1,946 tons of inerts were generated, but not landfilled in 1990.

9. Traffic Signal Interconnect on West A Street

In order to install a conduit for traffic signal interconnects along West A Street, pavement was removed and replaced. A six inch wide trench was dug to remove the existing pavement before the conduit could be laid in place. The removal of this pavement would have generated 79 tons of asphaltic concrete waste. Additionally, 2 inches of dirt was removed along the length of the trench to make room for the conduit. The removal of this asphalt would have generated 22 tons of waste. The project would have generated a total of 101 tons of waste. (Project No. 5889).

10. D Street Extension

The D Street Extension project required removal of existing sidewalks and curb and gutters. This project would have generated 879 tons of waste. (Project No. 5105).

11. Carlos Bee Blvd. Extension

The Carlos Bee Blvd. Extension project required removal of existing sidewalks and curb and gutters. This project would have generated 1,875 tons of waste (Project No. 5161).

12. Civic Center Drive Extension

The Civic Center Drive Extension project required removal of 84 cy of existing concrete. This project would have generated 92 tons of waste. (Project Nos. 5918 & 7060).

13. Construction of Left Turn Lanes on Huntwood and West Winton

The left turn lane projects on Huntwood and West Winton required removal of 48 cy of existing concrete, and surface planing of 212 cy. This project would have generated 286 tons of waste. (Project Nos. 8065 & 8069).

14. Pavement Improvements to West Jackson Street, Santa Clara Street and West Harder Road

This project required removal of asphalt and small quantities of dirt from the above-listed streets and yielded 806.04 tons (126.75+158.66+520.63) of waste that were not landfilled (Project No. 5-3406-05).

15. Crosstown Interceptor, Stage 1, Mission Boulevard to Harder Road

This project is a sewage conveyance system that required removal of concrete and asphalt that totaled 3,918.31 tons (Project No. 7505).

16. "D" Street Reservoir Discharge Line

This project required removal of 0.12 tons of asphalt that were not landfilled (Project 7067).

17. Water and Sewer Line Replacement on Van Court and Vagabond Lane

This project required removal of 413.59 tons of asphalt that were not landfilled (Project 5004).

18. Landscape Renovation of Harder Road Median

This project required removal of concrete and generated 1,586 tons of waste that was recycled (Project No. 6413).

19. Pavement Rehabilitation

This project required planing asphalt/concrete for overlaying (78.14 tons) and some spot repairs (258.5 tons), for a total of 437 tons of material that were not landfilled (Project No. 5158).

20. Pavement Rehabilitation: Spot Repairs

This project required removal of 377 tons of asphalt/concrete due to spot repairs (Project Nos. 5156, 6102, 7529).

**Summary of City Inert Recycling Activities**

The 20 City projects diverted an estimated 16,879 tons of waste from landfill in 1990.

In addition to the tonnages identified from the projects listed above, approximately 194,000 cy, or about 213,462 tons of earth were excavated at six street maintenance projects and City airport improvement projects. However, since most of this material would not have been landfilled, it is not included in the total wastes generated in the City in 1990.

| Table 2.1.B. Diversion of City Project Inerts, 1990 | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1) | Project #5880 - West Winton Ave. Left Turn Lane Extension | | | | | | Tons |
| | remove concrete (cy) | 33 | 42.90 | | | | |
| | roadway excavation - asphalt (cy) | 85 | 93.50 | | | | |
| | | | | | | Subtotal | 136 |
| 2) | Project #7015 - Construction of Water Main, 'D' Street and Hill Ave. | | | | | | |
| | asphalt concrete (pavement replacement) (tons) | | 200.00 | | | | |
| | | | | | | Subtotal | 200 |
| 3) | #7507 - Sanitary Sewer Replacement | | | | | | |
| | | PVC Pipe Diameter (ft.) | Linear Feet | Depth (ft.) | Asphalt & Dirt | Tons | |
| | | 0.5 | 69 | 5.5 | 35.14 | 36 | |
| | | 0.5 | 12 | 10.0 | 11.11 | 11 | |
| | | 0.5 | 27 | 13.5 | 33.75 | 35 | |
| | | 0.67 | 117 | 5.5 | 63.56 | 65 | |
| | | 0.67 | 171 | 10.0 | 168.89 | 173 | |
| | | 0.67 | 481 | 13.5 | 641.33 | 658 | |
| | | 1 | 173 | 6.0 | 115.33 | 118 | |
| | | 1 | 95 | 9.5 | 100.28 | 103 | |
| | | 0.67 | 80 | 6.0 | 47.41 | 49 | |
| | | 0.67 | 35 | 6.0 | 20.74 | 21 | |
| | | | | | | Subtotal | 1,270 |
| 4) | Project #7027 - Surfacing Reservoir Sites | | | | | | |
| | excavation, asphalt (cy) | 400 | 410 | | | | |
| | excavation, asphalt (cy) | 80 | 82 | | | | |
| | excavation, asphalt (cy) | 240 | 246 | | | | |
| | excavation, asphalt (cy) | 270 | 277 | | | | |
| | remove concrete piles (3) | 3 | 3 | | | | |
| | remove concrete curb (4" x 12") - LF | 75 | 1 | | | | |
| | | | | | | Subtotal | 1,019 |
| 5) | Project #5131 - Left Turn Lane at Huntwood Ave | | | | | | |
| | roadway excavation, asphalt (cy) | 112 | 123 | | | | |
| | remove concrete (cy) | 36 | 47 | | | | |
| | | | | | | Subtotal | 170 |
| 6) | Project #5877 – Intersection Improvements at Clawiter Rd | | | | | | |
| | roadway excavation, asphalt (cy) | 320 | 352 | | | | |
| | | | | | | Subtotal | 352 |
| | **Total Tons Diverted** | | | | | | **3,147** |



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| Table 2.1.B. Diversion of City Project Inerts, 1990 | | | | | | |
|---|---|---|---|---|---|---|
| 7) | Project #7040,7054 & 7055 Water Main Replacement | | | | | Tons |
| | Asphalt & Concrete | | | 821 | | |
| | Asphalt | | | 195 | | |
| | Total Tons | | | | | 1,016 |
| | | | | | | |
| 8) | Project #5146 & 5153, Street Resurfacing | | | | | |
| | Thickness – feet | 0.10 | 0.15 | 0.20 | 0.05 | |
| | square yards | 7,700 | 2,500 | 15,500 | 21,250 | |
| | Thicknesses/yard | 30 | 20 | 15 | 60 | |
| | cubic yards (asphalt) | 257 | 125 | 1,033 | 354 | |
| | Total Tons | | | | | 1,946 |
| | | | | | | |
| 9) | Project #5889,West A Street Traffic Signal Interconnect | | | | | |
| | length – feet | 6,550 | | 6,550 | | |
| | length yards | 2,183 | | 2,183 | | |
| | cubic yards | 61 | | 20 | | |
| | #/cy (asphalt) | 2,600 | | 2,200 | | |
| | Total Tons | 79 | | 22 | | 101 |
| | | | | | | |
| 10) | Project #5105, D Street Extension, Phase 1 | | | | | |
| | Remove curb & gutter (l.f.) | 1,324 | 110 | 121 | | |
| | Remove sidewalk (l.f.) | 6,200 | 689 | 758 | | |
| | Total Tons | | | | | 879 |
| | | | | | | |
| 11) | Project #5161, Carlos Bee Blvd. Extension | | | | | |
| | Remove curb & gutter (l.f.) | 3,070 | 256 | 281 | | |
| | Remove sidewalk (s.f.) | 8,690 | 1,448 | 1,593 | | |
| | Total Tons | | | | | 1,875 |
| | | | | | | |
| 12) | Project #5918 & 7060, Civic Center Drive Extension | | | | | |
| | Remove concrete (cy) | | 84 | 92 | | |
| | Total Tons | | | | | 92 |
| | | | | | | |
| 13) | Projects 8065 & 8069, Left Turn Lanes & Intersection Improvements | | | | | |
| | Remove concrete (cy) | | 48 | 53 | | |
| | Plane existing pavement | | 212 | 233 | | |
| | Total Tons | | | | | 286 |
| | | | | | | |
| | **Total Tons Diverted** | | | | | **6,195** |



27-22

| Table 2.1.B, Diversion of City Project Inerts, 1990 | | | | | | | |
|---|---|---|---|---|---|---|---|
| 14) | Project #5-3406-05 W. Jackson St., Santa Clara St., & W. Harder Rd. Improvements | | | | | | |
| | | Length (ft.) | Depth (ft.) | Width (ft.) | Tons | | |
| | West Jackson St. | | | | | | |
| | Remove asphalt | 300 | 0.45 | 2 | 11 | | |
| | remove asphalt & dirt | 300 | 1.90 | 2 | 43 | | |
| | Remove asphalt | 140 | 0.45 | 2 | 5 | | |
| | remove asphalt & dirt | 140 | 1.90 | 2 | 20 | | |
| | Remove asphalt | 260 | 0.45 | 2 | 10 | | |
| | remove asphalt & dirt | 260 | 1.90 | 2 | 38 | | |
| | | | | | | Subtotal | 126.75 |
| | Santa Clara St. | | | | | | |
| | Remove asphalt | 170 | 0.45 | 0.25 | 1 | | |
| | remove asphalt & dirt | 170 | 1.90 | 0.25 | 3 | | |
| | Remove asphalt | 40 | 0.45 | 20 | 15 | | |
| | remove asphalt & dirt | 40 | 1.90 | 20 | 58 | | |
| | Remove asphalt | 85 | 0.45 | 2.00 | 3 | | |
| | remove asphalt & dirt | 85 | 1.90 | 2.00 | 12 | | |
| | Remove asphalt | 370 | 0.45 | 2.00 | 14 | | |
| | remove asphalt & dirt | 370 | 1.90 | 2.00 | 53 | | |
| | | | | | | Subtotal | 158.66 |
| | West Harder Rd. | | | | | | |
| | Remove asphalt | 555 | 0.25 | 15.5 | 88 | | |
| | remove asphalt & dirt | 555 | 0.83 | 15.5 | 271 | | |
| | remove asphalt | 250 | 0.25 | 15.5 | 39 | | |
| | remove asphalt & dirt | 250 | 0.83 | 15.5 | 122 | | |
| | | | | | | Subtotal | 520.63 |
| | | | | | | | |
| 15) | Project #7505, Crosstown Interceptor | | | | | | |
| | Remove asphalt | | | | | Subtotal | 3,918.31 |
| | | | | | | | |
| 16) | Project #7067 - "D" Street Reservoir Discharge Line | | | | | | |
| | remove asphalt | 15 | 0.10 | 2 | 0.12 | | |
| | | | | | | Subtotal | 0.12 |
| | | | | | | | |
| 17) | Project #5004 - Van Ct. and Vagabond Ln. Water and Sewer | | | | | | |
| | remove asphalt | 324 | 6.25 | 2 | 154 | | |
| | remove asphalt | 462 | 3.50 | 2 | 123 | | |
| | remove asphalt | 450 | 4.00 | 2 | 137 | | |
| | | | | | | Subtotal | 413.59 |
| | | | | | | | |
| | **Total Tons Diverted** | | | | | | **5,138.06** |



27-23

| Table 2.1.B. Diversion of City Project Inerts, 1990 | | | |
|---|---|---|---|
| 18) | Project #6413 - Landscape Renovation, Harder Road Median | Cubic Yards | Tons |
| | 4 – remove existing concrete nose (4") – SF | 70 | 1.12 |
| | 13 – remove and dispose PCC curb (3" x 6") – LF | 100 | 0.48 |
| | 22 F & I, including trenching (18" x 6") – LF | 29,500 | 840.75 |
| | 23 - F & I, including trenching (18"x 6") – LF | 5,750 | 163.88 |
| | 27 - F & I 1" dia. conduits, trenching (18" x 6") – LF | 550 | 15.68 |
| | 28 - F & I 1-1/2" dia. conduits, trenching (18" x 6") – LF | 1,300 | 37.05 |
| | 29 – F & I 4" dia. sleeves, trenching (18" x 6") – LF | 50 | 1.43 |
| | 30 – F & I 3" dia. sleeves, trenching (18" x 6") – LF | 1,200 | 34.20 |
| | 31 – F & I 4" dia. sleeves, trenching (18" x 6") – LF | 600 | 7.10 |
| | 32 - Saw cut paving, remove and dispose, trenching (18" x 6") – LF | 2,000 | 57.00 |
| | 51 - remove soil for paving – CY | 350 | 359.10 |
| | 53 - remove and dispose PCC curb (3" x 6") – LF | 460 | 2.77 |
| | 55 - saw cut & remove asphalt paving for curb and median work – SF | 1,000 | 16.05 |
| | 61 - F & I water main line pipe, trenching (18" x 6") – LF | 560 | 15.96 |
| | 64 - F & I 1 1/2" dia. conduits, trenching (18" x 6") – LF | 200 | 5.70 |
| | 65 – F & I 4" dia. sleeves, trenching (18" x 6") – LF | 50 | 1.43 |
| | 66 – F & I 6" dia. sleeves, trenching (18" x 6") – LF | 325 | 9.26 |
| | 67 - Saw cut paving, remove and dispose, trenching (18" x 6") – LF | 250 | 7.13 |
| | | Subtotal | 1,586 |
| | | | |
| 19) | Project #5158 – Pavement Rehabilitation | | |
| | 3 – Plane AC for overlay conform (1" wedge cut) - SY | 5,830 | 78.14 |
| | 4 - 6" deep lift AC spot repair - SF | 12,690 | 258.50 |
| | | Subtotal | 437 |
| | | | |
| 20) | Project #5156, 6102, 7529 – Pavement Rehabilitation | | |
| | 5156 - 6" deep lift AC spot repair - SF | 16,800 | 342.22 |
| | 7529 - 8" deep lift AC spot repair - SF | 270 | 7.33 |
| | 6102 - 12" deep lift AC spot repair - SF | 668 | 27.21 |
| | | Subtotal | 377 |
| | **Total Tons Diverted** | | **2,399** |

## 2.2. 1990 Source Reduction Activities That Were Not Counted

A. Activities by Businesses

Although the 1990 Brown & Caldwell study surveyed commercial recycling activities, no diversion estimates from commercial source reduction activities were recorded in their survey. Examples of these types of activities include paper use reduction programs, sale and donation of used equipment, and reuse of transport packaging.

To determine the tonnage diverted through reuse or source reduction activities, businesses located in the City were contacted. The survey identified those activities currently conducted that were already being performed in 1990, but were not included in the calculated 1990 diversion rate. A copy of the survey form is enclosed (Attachment 4). The list of businesses contacted is included on the enclosed disk (Attachment 5).

Although many businesses identified several on-going source reduction activities, few could provide quantifiable data regarding reuse or source reduction activities that had been implemented. Projections of diversion from waste prevention are only made for those activities that can be clearly documented. Activities for which the documentation is considered to be inadequate are listed, but are not assigned a diversion tonnage.

Commercial Survey Data and Results

The City was able to obtain program-specific information from 71 of the 227 businesses that responded to the survey. This response represents 11.26% of the 630 businesses in Hayward with more than 15 employees. The businesses surveyed had from 15 to 1455 employees (with an average of 65 employees), and are from a variety of SIC Code groups listed below.

The survey asked businesses if they participated in any of the following activities. Of the 71 businesses that provided data, the following list indicates the number of businesses participating in the source reduction activities noted:

*Inventory Control*

6 Rotate stock to reduce printed materials becoming out-dated, or to reduce spoilage
8 Rent equipment which is only used on rare occasion
36 Use refillable and rechargeable items (i.e., toner cartridges)

*Manufacturing*

6 Manufacture products with recycled content materials
0 Design the product so little waste is generated during construction

*Purchasing*

17 Order supplies in bulk to reduce packaging waste
34 Order supplies electronically (i.e., telephone, e-mail)
20 Reduce single use item consumption (i.e., foam cups, trash can liners)

*Writing & Printing Paper*

33 Use voice mail and electronic mail when possible
10 Submit documents electronically, rather than printed copies
3 Print materials in smaller font size and with narrower margins
3 Print draft materials on the back of pages printed only on one side
6 Eliminate unnecessary forms & copies of forms
1 Print all forms on white paper for ease of recycling & cost of paper
1 Reduce the number of copies of draft reports printed
2 Ask several people to review and comment on the same draft
3 Circulate documents rather than make separate copies for each person
13 Store information on computer disks, rather than on paper to save space
11 Keep copies in centralized files for all staff to use
3 Keep mailing lists current, accurate, and without duplicate entries
7 Make double-sided copies whenever feasible

*Equipment*

18 Sell equipment which is no longer used (rather than put it in the trash)
19 Donate unwanted equipment to non-profits, or list with a materials exchange (i.e., CalMax)

*Food Services*

4 Offer employees and visitors reusable mugs for coffee & tea, rather than disposable foam cups
4 Provide washable glasses, cups, plates and flatware in the cafeteria
3 Donate extra food to "food-banks"
1 Provide condiments from bulk dispensers, rather than individual packets

*Landscaping*

6 Plant slow growing plants which require less maintenance & generate less trimming wastes
3 Leave grass clippings on the lawn
1 Chip plant trimmings for mulch
1 Compost plant trimmings on site in small bins

*Miscellaneous*

5 Use cloth hand towels and air dryers instead of paper towels

Many of the current source reduction activities were not widely used by businesses in 1990, so no diversion is projected for the base-year adjustment as a result of the activities listed immediately above. However, three types of source reduction activities have had a significant impact on the waste stream, and including them results in adjustments to the 1990 base-year, as described below. The three activities include donation and sale of used equipment, and plant trimmings waste prevention.

The calculations used in this report to project diversion in Hayward are based on data for 1996 that the City of Palo Alto generated in 1997. That City's study determined that the average business with 15 to 200 employees sold or donated about 250 pounds per year of used office

equipment, and a business with over 200 employees sold or donated about 1,000 pounds per year. The Palo Alto survey indicated that the furnishings of a standard office for one employee, including a desk, one chair, a bookcase and a file cabinet weighs in excess of 400 pounds, depending on the age and type of materials used. The equipment from five offices would generate one ton of waste. It is typical, and not unique to Palo Alto, that private offices would be furnished with a desk, chair, bookcase and file cabinet. Modular office areas in open spaces also have partitions to divide the spaces that might be discarded along with the other office furniture, thus increasing the waste generation. When companies either upgrade furnishings, or downsize the number of employees, the old furniture is eliminated.

The City of Palo Alto's survey data represents the best current information about current waste prevention practices. It is the most precise, locally-available data on the actual activities of companies and is therefore used for this analysis. Other than the expanded use of computers, most office furniture and equipment, retail display equipment and manufacturing equipment has not significantly changed in size or weight since 1990.

Unfortunately, the data from Palo Alto does not include the name and type of each business that donated or sold equipment, so the data can not directly be compared with the Hayward survey results. However, both cities surveyed a wide range of business types.

The following is a list of the businesses in Hayward who responded to the survey and confirmed that they donated or sold equipment. The list includes the business type (based on SIC Code) and the types of materials that were sold or donated, and the business name.

- Construction (17) – used equipment: C A Mechanical
- Manufacturing – Paper (26) – used equipment: Nakagawa Manufacturing USA.
- Trucking and Warehousing (42) – office equipment, damaged merchandise: California Movers Express
- Wholesale Trade – Non-Durable Goods (51) – office equipment, displays, and damaged merchandise: Allgood Industries; Kent H Landsberg Co.; and Seagrams Classic Wine Co.
- Wholesale Trade – Food Store (53) –used equipment and displays: Lucky Food Center
- Retail Trade – Automotive (55) – office equipment and auto parts: Allan Motor Co.
- Retail Trade – Other (59) – office equipment and displays: Walgreen's Drug Store
- Services – Finance (65) – office equipment and furniture: Chicago Title Co.

- Services – Other – used equipment
  Aratex Services (72) donated used uniforms.
  Developmental Services Assn (83)
  United Food & Commercial Works (86) donated old computer systems to schools
  Forensic Analytical Specs (87)
  Container Management (87)sold used machinery,
  Corrosion Engineering & Rsrch Center (87) rebuilt and salvaged old machinery,
  Groeniger & Co (99) sold used vehicles

- Services – Business Services (73) – office equipment: Admail Express Inc.; Bay Cable Advertising

- Services – Medical (80) – used equipment and furniture:
  Bassard Convalescent Hospital Care West; Gateway Nursing Center; Hayward Hills Convalescent Hospital; and St Christopher Hospital

- Services – Education (82) – office equipment and furniture: California State University; Vallecitos CET Inc. stored used furniture and equipment for use later

*Donate Used Equipment*

The survey found that 19 of 70 businesses, or 27%, donated equipment to non-profit organizations. The survey conducted for the City of Palo Alto indicated that businesses with less than 200 employees were likely to donate about 250 pounds of equipment per year to non-profit organizations, and those with more than 200 employees were likely to donate about 1,000 pounds per year. By applying the Palo Alto diversion calculations to the Hayward survey data, it is projected that about 24 tons (160 businesses x 250 pounds, and 8 businesses x 1,000 pounds) were diverted in 1990.

*Sell Used Equipment*

The survey of businesses found that 25% of the businesses sold used equipment when it became outdated for their application. Assuming that the weight of the sold equipment was equivalent to that donated by businesses to non-profits, the Hayward survey data identified about 22 tons (150 businesses x 250 pounds, and 7 businesses x 1,000 pounds) that were diverted in 1990.

*Composting, Grasscycling & Xeriscaping*

A study by the Simi Valley Department of Environmental Services in the preparation of their SRRE found that about one cubic yard of grass clippings are generated per week per acre of mowed lawn. Using an average density of 400 pounds per cubic yard, 0.2 tons per week of grass clippings are generated per acre of lawn area, when this material is containerized for collection. With a 40-week growing season in the Bay Area, approximately 8 tons (0.2 tons x 40 weeks) per acre of grass clippings are generated. However, when it is left to break down on the lawn, no waste is generated, and the nutrients in the grass are returned to the soil as decomposition occurs.

The Skywest Public Golf Course grasscycles on 80 acres at the golf course. At a generation rate of 8 tons per acre, 640 tons (8 x 80) of grass are diverted from disposal. They also mulch plant trimmings for use on site, but were not able to provide any estimate of the amount of material diverted to mulch. No diversion credit is projected for the mulching activities. (Enclosed is Attachment 6, which is a copy of a March 16, 2000, letter signed by Robert Duhr of the Skywest Public Golf Course confirming that these practices did occur in 1990 and continue to be conducted.)

**Commercial Source Reduction Totals**

The survey results indicate that the combined commercial source reduction activities diverted 686 tons that were not counted in 1990.

B. City-Sponsored Activities

No diversion estimates from City-sponsored source reduction activities were recorded in the 1990 SWGS conducted by Brown & Caldwell. City-sponsored reuse or source reduction activities that were performed in 1990 and continue to be performed, but not included in the 1990 diversion rate were identified and documented and are presented below.

Since the mid-1980's, City crews have chipped plant trimmings from street medians and parkways. In 1996 and 1997, an average of 845 cubic yards of chipped plant trimmings were applied on landscaped areas around the City. In 1998, 1,584 cubic yards were chipped and applied on landscaped areas around the City. A copy of a letter corroborating this information is enclosed (Attachment 7). Freshly chipped plant trimmings have an average density of 527 pounds per cubic yard based on the CIWMB Conversion Factors for Individual Material Types (1991, page 17). Therefore, approximately 417 tons (1,584 x 527/2,000) per year of yard wastes were diverted from landfill.

C. Activities by Residents

No diversion estimates from residential source reduction activities were recorded in the 1990 SWGS conducted by Brown & Caldwell. Examples of residential waste diversion activities include donations to thrift shops, on-site composting and grasscycling. R.W. Beck identified residential source reduction through donation to thrift organizations to be only one pound per person per year, or 53 tons (41,570 residences x 2.54 persons per household/2000 pounds), and yard waste prevention activities totaling 2,026 tons. These calculations are based on 1990 California Department of Finance data that indicate that there were 29,400 single-family households, and 12,170 multi-family households, for a total of 41,570 residences in the City.

A survey of residents was conducted to research, calculate and document estimates of tonnage diverted through source reduction and reuse activities that were performed in 1990, and continue to be performed today, but that were not included in the 1990 diversion rate. A total of 40 households, 37 single-family households and 3 multi-family households, were surveyed to

determine the waste prevention activities in which they participate. A total of 17 other households were contacted, but declined to participate in the survey.
A sample size of 40 surveys is sufficient to identify the level of participation in practices that are common to all City residents. The same number of samples (40) was required in 1990 for the City of Hayward residential sector waste characterization study.

Also, an analysis conducted by CIWMB staff for the City of Monterey, projected the 1998 residential donation rate based on a calculated tons-per-thrift-store in the City, with no survey of residents. The City of Hayward surveyed specific residents, chosen at random, to determine their actual waste prevention activities. This provides a more accurate projection of pounds of donation per household in the City, because some of the donation centers used may be located outside of the City.

Projections of diversion as a result of waste prevention is only made for those activities (such as donation and landscaping activities) which can be clearly documented. Activities for which the documentation is considered to be inadequate (for example, garage sales and junk mail reduction) are listed, but are not assigned a diversion tonnage.

Residential Survey Data

Survey respondents were asked 10 questions.

1. 34 of 37 (92%) said that they participate in the curbside recycling program
2. 33 of 37 (89%) said that they participate in the yard waste collection program
3. 35 of 40 (87.5%) said that they donated household items to their church or other non-profit organization.
4. 2 of 40 (5%) said that they had sold items at a garage sale
5. 5 of 40 (12.5%) said that they take a reusable bag to the store when they shop
6. 7 of 37 (19%) said that they grasscycle
7. 8 of 37 (22%) said that they compost at home
8. 7 of 37 (19%) said that they have replaced their lawn with other landscaping, and 7 of 37 (19%) said that they buy slow growing and drought tolerant plants
9. 5 of 40 (12.5%) said that they have asked to be removed from junk mail lists
10. 0 of 40 (0%) said that they use cloth diapers instead of disposables.

Residential Survey Results

*Donation*

Of the 40 households surveyed, 35, or 87.5%, provided information on the amount of materials that they had donated to non-profits. The total amount of material was approximately 2,600 pounds, or an average of 65.05 pounds per household per year. Since there were 41,570 households in the City in 1990, an estimated 1,183 tons (36,374 households x 65.05/2,000) of materials were donated by residents. This is an increase of 1,130 tons over the 53 tons attributed by the R. W. Beck survey.

These estimates are supported by data provided to the Alameda County Waste Management Authority (ACWMA) by Goodwill Industries, in which 3,921 tons of materials were donated for sale or were recycled County-wide from November 1997 through October 1998. The Authority also assumed that all other similar services (e.g., Salvation Army, St. Vincent de Paul, junior leagues, Mission Ministries) had similar diversion rates. Additionally, some residents would have donated materials to churches and other relief agencies that are not included in these calculations. Assuming that Goodwill Industries received approximately one-quarter of all of the materials donated, it is projected that 16,000 tons were donated during that year. When this amount is divided by the total population of Alameda County (1,407,713 according to CA DOF January 1997), about 23 pounds per capita were donated.

*On-Site Composting and Grasscycling*

Of the 37 single-family households surveyed, 22% composted at home, and 19% participated in grasscycling. According to a detailed survey conducted by the City of Palo Also as part of their home composting program, those who compost-at-home divert an average of 300 pounds per year of plant trimmings from collection and disposal. Using the Hayward survey data, about 970 tons (6,468 x 300/2,000) were diverted in 1990 by home composting efforts.

Those who grasscycle divert an average of 275 pounds per household per year. Using the survey data, about 768 tons (5,586 x 275/2,000) were diverted in 1990 by grasscycling.

*Xeriscaping and No-Lawn Options*

Of the 37 single family households surveyed, 22% had removed their lawn, and 10% specifically purchased plants that do not require pruning (e.g., ground cover instead of grass) or are slow growing and so require less pruning. Since having no lawn means no clippings are generated for disposal 140 pounds per household per year, or about 453 tons (6,468 x 140/2,000) of wastes are prevented by this activity. Reduced plant trimmings are projected to reduce waste generation by 100 pounds per participating household per year. Using the Hayward survey data, approximately 147 tons (2,940 x 100/2,000) were diverted in 1990 by xeriscaping efforts.

**Residential Source Reduction Totals**

The survey results indicate that the combined residential source reduction program diverted 3,521 tons, of which 1,442 tons were not counted in 1990. The total is based on 1,183 tons as a result of donations to various non-profit groups, and 2,338 tons from a variety of yard waste prevention activities. In 1990, 53 tons of material were recorded as donations, and 2,026 tons of yard waste were reduced by waste prevention activities.

**Summary of Source Reduction Activities**

Businesses prevented 686 tons of wastes, the City prevented 417 tons of wastes, and residents prevented 1,442 tons of wastes that were not counted in 1990. These source reduction activities prevented a total of 2,545 tons of waste generation in 1990.

**Summary of Total Diversion Activities**

Diversion activities reduced wastes landfilled by 4,620 tons (2,620 from out-of-County disposal and 2,000 from City Clean-Up activities), and 16,879 tons from City-sponsored recycling activities. Source reduction activities by businesses, the City, and residents prevented 2,545 tons in 1990. The total additional waste identified is 24,044 (4,620+16,879+2,545) tons. Therefore, the total waste generation for 1990 would have been 262,043 tons (237,999 + 24,044).

| Table 2.2.A. Commercial Waste Prevention Activity Calculations | |
|---|---|
| | |
| **Equipment Donation** | |
| 600 | businesses with 15-200 employees |
| 27% | Participants |
| 161 | participating businesses |
| 250 | pounds donated per business |
| 40,141 | total pounds donated |
| 20.07 | tons donated |
| | |
| 30 | businesses with 200+ employees |
| 27% | Participants |
| 8 | participating businesses |
| 1,000 | pounds donated per business |
| 8,028 | total pounds donated |
| 4.01 | tons donated |
| | |
| 24.08 | total tons donated |
| | |
| **Equipment Sales** | |
| 600 | businesses with 15-200 employees |
| 25% | Participants |
| 150 | participating businesses |
| 250 | pounds donated per business |
| 37,500 | total pounds donated |
| 18.75 | tons donated |
| | |
| 30 | businesses with 200+ employees |
| 25% | Participants |
| 7.0 | participating businesses |
| 1,000 | pounds donated per business |
| 7,000 | total pounds donated |
| 3.50 | tons donated |
| | |
| 22.25 | total tons donated |
| | |
| **Grasscycling** | |
| 8 | tons per acre |
| 80 | acres of grasscycling |
| 640 | tons diverted |
| | |
| **686** | **Total Tons of Commercial Reduction** |

| Table 2.2.C. Residential Waste Prevention Activity Calculations | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Donation** | | | | | | | Donation |
| 65.05 | pounds per household | | | | | | Amounts |
| 87.5% | Participation (35 of 40 HH) | | | | | | 30 |
| 41,570 | Households | | | | | | 50 |
| 36,374 | Participants | | | | | | 30 |
| 1,183 | Tons | | | | | | 60 |
| | | | | | | | 30 |
| **On-Site Composting** | | | | | | | 30 |
| 300 | pounds per household | | | | | | 180 |
| 22% | Participation (8 of 37 HH) | | | | | | 30 |
| 29,400 | Households | | | | | | 50 |
| 6,468 | Participants | | | | | | 60 |
| 970 | Tons | | | | | | 30 |
| | | | | | lawn size | | 30 |
| **Grasscycling** | | | | | (sq.ft.) | | 240 |
| 8 | Tons per acre | | | | 750 | | 60 |
| 275 | pounds per HH (750 sq.ft.; 25'x 30') | | | | 475 | | 30 |
| 19% | Participation (7 of 37 HH) | | | | 250 | | 200 |
| 29,400 | Households | | | | 1500 | | 240 |
| 5,586 | Participants | | | | 1500 | | 200 |
| 768 | Tons | | | | 400 | | 30 |
| | | | | | 400 | | 60 |
| **No Lawn** | | | | | 5250 | | 30 |
| 8 | tons per acre | | | *AVG.* | *750* | | 50 |
| 140 | pounds per HH (750 sq.ft.; 25'x 30') | | | | | | 240 |
| 22% | Participation (8 of 37 HH) | | | | | | 25 |
| 29,400 | Households | | | | | | 60 |
| 6,468 | Participants | | | | | | 30 |
| 453 | Tons | | | | | | 180 |
| | | | | | | | 80 |
| **Xeriscape** | | | | | | | 25 |
| 8 | tons per acre | | | | | | 30 |
| 100 | pounds per household | | | | | | 60 |
| 10% | Participation (4 of 37 HH) | | | | | | 92 |
| 29,400 | Households | | | | | | 30 |
| 2,940 | Participants | | | | | WT. | 2602 |
| 147 | Tons | | | | | *AVG.* | *65.05* |
| | | | | | | | |
| **3,521** | **Total Tons of Residential Source Reduction** | | | | | | |
| 53 | Household Donation Tons included in the Base-Year Calculations | | | | | | |
| 2,026 | Yard Wastes Tons included in the Base-Year Calculations | | | | | | |
| **1,442** | **Additional Tons Diverted** | | | | | | |